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Throughout history the power of a country resides in its ability to control the seas. From the relatively geographically small Great Britain to the larger United States, the ability to project power and control shipping lanes has proven vital in the building of these countries. Many battles have been fought over control of the vast space known as the world's oceans; the victor gets rewarded with the bounty as well as burden of maintaining this causeway of trade.

Maritime warfare involves ships, aircraft, submarines, missiles and a myriad of other gadgets to decisively destroy the enemy's forces. There are many lessons to be learned from past battles which are related to today's challenges. Modern naval operational design must assess the threats, limitations and advantages of sea power while supporting the unity of effort for the campaign. The Falklands conflict will be reviewed with particular attention to the naval forces involved. This will provide a historical perspective to relate today's naval challenges. The focus of the operational level of war in today's navy and the integration with other services is the last main point covered.

### The Importance of Operational Art and Design

Operational Art and Design allow the planner to conceptually grasp the elements required in forming a military operation. According to Dr. Reilly, "The arrangement of operations to accomplish military objectives and the national strategic end state conditions is one of the most important decisions a JFC will make." A clear military end state must be determined and based on that end state, friendly and enemy centers of gravity (COG) are established. The end state is accomplished by the effects caused by completing certain objectives. Lines of operation which focus on decisive points attack the enemy's center of gravity while protecting the friendly COG. How this process is applied is the essence of

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Operational Art, like a painter the planner can't be constrained by a methodical process to apply the concepts of Operational Design. In reality the Operational Design is the skeleton on which to hang the meat of Operational Art. If this process is done correctly and with much thought, military operations can be successful, even though tactical failure or shortcomings are present, as seen in the Falklands conflict.

### **Two Powers Collide**

On 14 June 1982 Major-General Menendez surrendered the Argentinean forces in East and West Falklands. The Royal Navy was operating 8000 miles away from England and 3750 miles away from Ascension Island which was their forward operating base.<sup>2</sup> It's an incredible feat that a naval taskforce can sail 8000 miles and reclaim a set of islands only 400 miles from the coast of the invading country. "The British government ultimately assembled off the Falklands proper a probable 60-70 ships of all kinds: two small VSTOL aircraft carriers. destroyers, frigates, submarines, minesweepers, troopers, assault transports, two additional improvised auxiliary carriers, hospital ships and a converted landing ship."<sup>3</sup> In comparison the Argentina naval force consisted of 22 warships, of these a conventional aircraft carrier, a single cruiser, frigates and submarines. The Argentineans did have an advantage in their air force which consisted of 9 Canberra heavy bombers, 44 Mirage and Dagger fighters, 82 A-4 Skyhawks, 6 Super Etendards, around 58 helicopters and 45 Pucara counterinsurgency aircraft. Britain's air strength mostly lied in the 24-36 Harrier jump jets, a few Vulcan heavy bombers, 42 helicopters and 5 Nimrod anti submarine warfare aircraft. The Argentine Air Force had qualitative and quantitative advantage with supersonic fighters, attack, and bomber aircraft. Of these equipment totals, one third of Argentina's high performance aircraft would be destroyed.

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117 in total, along with their only cruiser, and a submarine. Great Britain suffered 6 ships sunk and 22 aircraft destroyed, 13 of which were lost with the sinking of the ships. Only 9 Harriers were lost, 5 to enemy fire.<sup>4</sup> In less than three months the Falklands would again be under Britain's flag, what limitations, threats and advantages did the task force have?

### **The Distant Battle**

Operating 8000 miles away from home comes up as a major logistical test. The Royal Navy countered this limitation by contracting private cargo ships and tankers to provide supplies. Every available ship was called into action, and interesting note is that about half of the surface fleet was non combat vessels. The ratio for the long logistical train was for every one combatant there had to be one resupply ship. "The RFA oiler *Olmeda* refueled the two carriers and their escorts 93 times during the month of May alone, during which time she provided 30,000 tons of fuel and oil. She herself was replenished five times during that same period." With the advent of lighter alloys post WW 2 maritime thought called for lighter and faster vessels that used their superior defenses instead of being able to handle damage. Some of the newer types of combatants lacked the type of armor of the older warships. Many superstructures on the vessels where constructed of Aluminum which under intense heat can melt. The missile that sank HMS Sheffield didn't explode but the unburned fuel ignited fires aboard the ship. These fires caused substantial degrading of the damage control system and the crew was unable to control the fires which lead to the eventual loss of the ship. Lack of adequate point defense system onboard British vessels proved very costly; if the attackers got close enough to any of the ships, there was no self contained anti-air system available like the Close in Weapon System (CIWS) used by today's navies. A CIWS like system could have engaged attacking aircraft that were operating at

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very low altitude to evade longer ranged surface to air missiles that were aboard the Royal Navy destroyers. The final limitation that will be discussed is time. The British were at the disadvantage of attacking and dislodging an occupying force before popular opinion ran out. Any democratic nation involved in warfare suffers from declining public support in any prolonged military campaign. There were bets that the offensive would take a minimum of six months, in actuality it took half that time, a tribute to the Admiralty's knowledge of operational art. With the total attacking power available, a single decisive offensive was out of the question, an intelligent campaign to attrite the Argentinean Navy and Air Force needed to be accomplished. This attrition had to continue without slack in the blockade around the Falklands.

### **British challenges**

Many threats faced the British task force during the Falkland war and this was the first time since WWII that a large scale naval battle would take place. The combination of Exocet anti-ship missiles and low altitude tactics lead to the loss of *HMS Sheffield* and the auxiliary carrier *Atlantic Conveyor*. Due to the curvature of the Earth an aircraft flying at very low altitude can fly under the radar of ground or sea based sites. The Royal Navy lacked an airborne early warning radar aircraft to notify units of low flying attackers. An interesting note is that Great Britain asked the U.S. for E-3 AWACS aircraft for precisely this point. Since only American crews knew how to operate this aircraft and both countries fighting each other were U.S. allies, the request was denied. "The Sheffield's passive radar detectors should have acquired the signature of the Exocet's own radar at a distance of 20 miles and given a warning time of 100 seconds. HMS *Sheffield's* active defense radar was turned off in order for the ship to use the sky net communications for conversations via satellite with London" Enormous threats

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when dealing anywhere near the littorals or when trying to achieve an amphibious landing are mines. The amphibious task force added fishing trawlers to their minesweeper fleets to lead the landing force into east Falklands. These trawlers towed their nets behind them to disrupt mines, a creative measure to counter a hidden threat. Once the landing party was ashore heavy Argentine air attack sank a few ships and damaged as many as 75 percent of the invasion force. "At the beginning, Argentine airpower outnumbered the British 7:1 by the time the invasion happened that ratio was 3:1" The Argentines low level tactics again proved a clever counter against the harrier cap and sea based missile systems. This massive air attack came at a price, about 1/3 of the total 140 high performance aircraft in the Argentine Air Force were destroyed, a strategic loss because of the inability to dislodge the landing force; men and equipment were still getting through to the British.

### **British strengths**

The British had many advantages in the arena of expeditionary warfare, both tactical and operational. The British were use to operating far from home at a high operational tempo, combine this with excellent training, they were a force to be reckoned with. The operational center of gravity for the British was their carrier force and supply ships because of the importance of sustainment and air support for the invasion force. This operational COG is essential because it provides the base of power projection. In a metaphorical sense, this COG is the spring from which all of the British power flows. Without this COG the British have no chance of applying power in the south Atlantic and the Argentineans knew this. To counter the critical vulnerabilities in the British COG they placed it beyond the operational reach of the Argentinean Air Force because the capital ships were kept out of the range of land based

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bombers. "While the Argentinean air crews were both determined and brave, as their actions in the final stage of the contest demonstrated, they were forced to operate at the extreme operational range of their aircraft, had short loiter times over the target areas, and lacked both airborne reconnaissance, and fighter cover." When the British had to get closer to the Falkland Islands their ships were within the operational reach of attack aircraft. Because of this, the most vulnerable part of the operation for the British was when the amphibious landing took place. This forcible entry procedure required the troop and supply ships to voyage into the range of land based attack aircraft and this phase of the assault is where the British lost most of their forces. The British center of gravity could have been attacked if the Argentinean Navy decided to attack from their carrier, but due to low wind over the deck the heavily loaded A-4 Skyhawks couldn't launch.

### The Argentinean Plan

The Argentinean operational center of gravity was the garrison that took the Falkland Islands and thus their critical vulnerabilities were the sea and air lines of communication. As with any besieged force, the need for resupply is imperative. The Argentinean COG from the onset was hard to defend and without a way to decisively defeat the power projection forces of the Royal Navy, the Argentinean's would be surrounded and forced into capitulation. A big part of this inability to keep the sea lines of communication open was the presence of Royal Navy nuclear attack submarines. The Argentineans were neutralized by the submarine threat after their cruiser *General Belgrano* was sunk by HMS *Conqueror*. The loss of a capital ship by a lone submarine just outside the maritime exclusion zone centered on the Falkland Islands was enough to discourage any future Argentinean naval activity. The Argentinean plan was to battle the

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British without using a naval force and rely on airpower to achieve a decisive victory by sinking the taskforce, a basic war of attrition. This is a sound plan, a loss of a ship compared to a few aircraft is a tactical victory, but the loss of over a hundred jets is operationally unsustainable. With the British advantages in weapons like surface to air missiles and air intercept missiles, the cost of sinking even one ship proved immense. "The most important British anti-air missile was the heavy, long range Sea Dart, carried by larger ships. Sea Darts denied the enemy the advantages of high level reconnaissance and high level attack, it imposed upon enemy aircraft penalties to fuel consumption and tactical choice." This is an example of how a tactic can actually affect an operational plan. The missile forced the Argentinean Air Force into low altitude tactics which decreased their operational reach.

### **Falkland Lessons**

Without the operational reach and ability to form into a massed attack, the strikes against shipping were piecemeal at best and not coordinated. In the aerial arena, the British sea harriers possessed the American made Aim-9L sidewinder which had an all aspect capability. This missile acted as a force multiplier by allowing an aircraft with performance that was subpar to the land based fighters, an advantage in air to air battle. By using superior weapons in the air the British were able to match the higher performance aircraft that the Argentineans used against them. Another often overlooked asset the British were able to take advantage of was tempo. British crews were able to launch multiple sorties a day keeping a nearly constant section of harrier fighters airborne to repel attacks. With a smaller number of units available, the ability to generate forces was critical to maintain tempo. Logistically the British were able to maintain the tempo while 8000 miles away from home and doing this while at sea. The Argentineans were

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unable to match this rhythm, "other problems that degraded the Argentine aerial threat, including insufficient material-technical support, shortage of spare parts and effective ordnance, limited numbers of qualified air crews, inadequate combat training by air force crews in low-level attacks against naval targets, and a poorly organized system of command and control." The final British advantage in the Falklands was the broad spectrum of training and tradition in the Royal Navy and Marines. The Royal Navy is an icon of the United Kingdom and everyone serving has a tremendous sense of pride and professionalism. This is in part due to hundreds of years of tradition and excellence passed down through the generations. It is considered an honor and privilege to serve in this small and elite organization. This pride transfers into a zealous dedication to duty and combat tenacity. The British Secretary of State for Defense states, "The most important factor in the success of the task force was the skill, stamina and resolution displayed by individual servicemen, the value of professional, volunteer, highly trained and carefully selected armed forces was amply demonstrated."<sup>11</sup> The fact is wars are still fought by people and what is war but means and will. With a high level of dedication, iron will and utter devotion to the cause, the Royal Navy and Marines was a force to be reckoned with, even though small in size. This is not to say that the Argentineans lacked resolve or grit, but the depth and spectrum of these qualities weren't apparent throughout their ranks.

### The U.S. Navy Today

The current U.S. fleet consists of larger more powerful carriers than those used by the British around the Falkland Islands. The carriers used by the United States form the operational center of gravity of the maritime component because of their unique ability to generate large amounts of force. With such importance placed in a single vessel and the nature of it being the

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center of gravity, the protection of such an asset is paramount. In the environment today, the littoral region presents a specific problem for these carrier strike groups. In many aspects some of the operational advantages the British possessed in the Falkland campaign, like operational reach are negated. Contrary, the advancements of naval power can offset this drawback of operating in close proximity to enemy positions.

### **Current Challenges**

The challenges the U.S. Navy has to face today comprise of some factors prevalent to the Argentinean Navy during the Falkland campaign. The need to resupply surface ships which consume large quantity of fuels played a decisive role in the lack of mobility of the Argentinean Navy. Due to the few oilers available, the ability of the Argentineans to project force and maintain a quick operational tempo was nonexistent. This logistical problem was capitalized by the British with its one oiler to one combatant ratio. This point illustrates the importance of a logistical train in the deployment of a U.S. carrier battle group. This challenge is also enhanced by the fact that U.S. operation happen throughout the globe very far away from any American ports. These sea lanes of communication have to be kept open to provide the necessary materials to not just forward deployed naval vessels but also deployed forces in general. Although the carrier itself is heavily defended, supply ships and confined waterways like straits need to be secured. Another big challenge the U.S. Navy faces is that of the monetary kind. With an ever shrinking budget the cost of operating and building billion dollar conventional carriers comes into question. The U.S. has the largest navy in the world, and no single or combined naval forces can currently match its capabilities. With this fact, some feel that the money could be better spent on other programs from defense to domestic policies. Although operational reach helped

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the British Navy and imposed limitations on the Air Force of Argentine, it can also place limitations on the U.S. naval forces. During Operation Enduring Freedom naval air assets were in place immediately to strike targets in Afghanistan. These assets had the ability to launch from carriers and deliver precise ordinance in the form of close air support. The distance required to travel was roughly 1200-1500 miles roundtrip with loiter time in between. For a fighter sized aircraft this would be impossible without air refueling. With the large distances involved the only way adequate amounts of fuel could be transferred is through coalition Air Force tankers. These KC-135 and KC-10 tankers effectively increased the operational reach of the relatively limited range naval strike aircraft. In this sense, a carrier strike group will have a limited operational reach without the support of large land based tankers.

#### U.S. Naval Power

With the current challenges defined, the advantages of a carrier strike group are far improved from what the British had to work with during the Falkland campaign. For the support of ground troops and strike missions the precision of today's carrier borne fighters is a huge advantage. A single F-18 can carry multiple precision guided munitions and in one pass can target many desired mean points of impact (DMPI's.) This ability has the effect of being a force multiplier, which frees up other assets to be assigned different tasks like providing suppression of enemy air defenses (SEAD) or offensive combat air patrols (OCA.) Also with the precision, less re-attacks are required and fewer munitions are needed to destroy a single target. Today's carrier strike groups utilize an increased economy of force never before seen from sea-based aircraft. Along with this precision, the use of tomahawk land attack missiles with ranges over 1000 miles can be used for targets heavily defended. These missiles allow strikes on targets

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without endangering the lives of any aircrew. An essential advantage the U.S. Navy has over the Royal Navy is the airborne early warning capability provided by the E-2C Hawkeye. This aircraft allows for the detection of low lying aircraft and coordination between ship borne controllers and interceptor aircraft. With the ability to detect aircraft at great ranges and at all altitudes the carrier strike group's capacity to kill the shooter instead of all of the weapons employed is essential. Although both navies have an anti missile defense system, the robustness of the American Navy is second to none. The concept of a layered defense, with the outer areas protected by fighter aircraft are backed up by the middle defenses comprised of Aegis guided missile cruisers and destroyers. Aegis is the mythical shield of the god Zeus and represents an impenetrable screen from enemy air attack. The Aegis ships utilize an Active Electronically Scanned Array (AESA) which looks like flat panels on the superstructure on the surface combatants. The AESA radar allows increased range, great resolution and multiple track and engage capability. In the Falklands conflict the Argentineans had the ability to overwhelm the ship based defenses because the British could typically engage one or two fighters at a time. The close-in weapons systems were non-existent in the British designs and once an enemy aircraft got close to the ship little could be done against the fast moving target. Today with rolling airframe missiles (RAM) and CIWS, the layers of defense are complete and balanced. Operationally the sortie generation of a small deck carrier is a fraction of a large deck Nimitz class vessel. While the British were able to put up at most maybe 25 sorties per day a U.S. carrier can produce anywhere between 100-150. With this increase in sorties the depth of attack and defense is expanded exponentially. Instead of having just a few Combat Air Patrol Stations (CAPS), multiple CAPS can be manned for defense and offensive operations to seize the

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initiative. Sortie generation can produce increased tempo of operations, as well as a multitude of target options to choose from. In the Falklands the presence of a large deck carrier could produce large numbers of Defensive Counter Air (DCA) caps making air attack against the surface ships a much more hazardous endeavor. More ground support sorties could be flown, degrading the defending garrison in the Falklands. Put simply, the force generation of the American Navy is a massive advantage in any future battles. What the British accomplished with its carrier aircraft against a modern air force is an impressive feat. The U.S. Navy has another advantage in this arena with the qualitative advantage in its aircraft. The backbone of the U.S. carrier air arm is the F/A-18 strike fighter, which comes in a few different models. The major advantage of this aircraft is its ability to switch between both fighter and attack missions with ease. This allows a sea based air force to have a great capability with a limited number of aircraft, an important attribute when operating from an aircraft carrier. The F/A-18 is better than, or as effective as any threat aircraft in existence, an important factor when facing a quantitative disadvantage. The British faced both a qualitative and number drawback when hardware came into account, but what they lacked in hardware they made up in skill. Training is what the naval air force prides itself on and views this as the decisive factor in engagements. With an advantage in the quality of hardware and training the U.S. Navy is a dominant force anywhere it is deployed to. Being a relatively small force usually sent into an area of overwhelming enemy numerical superiority, training is what the navy relies on to even the odds. Like the Royal Navy, the training is rigorous for aircrew and watch standers with emphasis on the cost of failure. Through traditions hundreds of year's old, certain tenacity is instilled in its war fighters, as the motto of Top Gun states, train to fight, fight to train, and fight to win.

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### **Current Naval Drawbacks**

With all of the advantages the U.S. Navy possesses, a solid analysis would be not complete without first mentioning some disadvantages. Many of the disadvantages reside in the operational environment in which the carriers operate these days. The confined waters of the littoral regions are a difficult location for any large conventional battle force. Asymmetric threats like suicide boats masquerading as merchant vessels could be devastating to any military ship within range. After the Falklands conflict Soviet Naval officers concluded that, "Most naval losses take place in coastal waters." These littoral regions are where up to 80% of the world population lives and many regions like the Arabian Gulf are surrounded on all sides by land, except for a small opening at the Strait of Hormuz. Geographically this leads any large capital ship a great target for a conventional or unconventional attack due to its close proximity to sometimes not so friendly land. This type of attack can happen in short notice and could also be massed enough to overwhelm a ships defenses. Along with the threat to military vessels, the danger to merchant ships is even greater because of their lack of defenses. Sinking a laden oil tanker in the shallow straights would cause turmoil and severely disrupt global economic markets. The importance of trade by means of shipping lanes is vital to the status quo and keeping these commerce routs open are critical to world stability. This is a very difficult situation for a navy that has to maintain freedom of access for international commerce. New generations of anti-ship missiles are becoming more available on the arms markets. Weapons like the Russian built Krypton which has a long range combined with supersonic ramjet propulsion pose a substantial threat to any surface ship operating within its reach. Weapons like this can be purchased and utilized by smaller countries and have a devastating effect on modern

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navies. Today navies face a sort of hybrid warfare in that the enemy could possess very advanced weapons and still remain relatively small and dispersed. The Falkland conflict proved this when the Argentineans sank two British ships with only seven Exocet missiles in their inventory. Both British ships succumbed to the sea by getting hit with just one missile apiece. Another large threat to the U.S. Navy is submarines and in particular diesel electric boats. The cost of conventionally powered submarines is much cheaper than nuclear powered ones. Being battery powered means that the subs have to use their diesel engines to recharge the batteries by either surfacing or raising a snorkel device. Improvements in battery design have increased speeds as well as endurance of the submarines. Operating by battery underwater makes these boats extremely quiet and a perfect ambush weapon in the confined littoral regions. More countries are increasing their sub force to counter the asymmetric advantage the U.S. has in surface combatants and naval airpower. In terms of a cost benefit analysis, better for an adversary to invest in relatively inexpensive submarines than to try to build guided missile cruisers and conventional aircraft carriers. This was the same strategy used by the Germans in World War II, unable to match the British in surface warship combat they invested in subs to break the logistical back of the allied forces. This strategy almost succeeded but for the code breaking and allied air superiority. Besides submarines, which while relatively inexpensive compared to aircraft carriers, the use of small boats in an asymmetric battle are possibly the most economical means of inflicting damage on a larger more capable force. High speed boats either filled with explosives or carrying anti-ship missiles could conduct a massed swarm against a single high value ship. For this attack to be successful, that high value ship would need to be close to shore in confined waters exactly like the littoral region. The small boat crews would

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have to press the attack even if they faced horrific losses to try to damage or sink a high value ship. This strategy while desperate is logically their most effective way to take out a U.S. Navy combatant. The idea would be to overwhelm the defenses of a single ship by a massed suicide attack hoping that the loss of a large warship would cause massive political fallout. With the combination of large high value ships operating close to hostile territory, a determined fanatic adversary, and an asymmetric strategy, the disadvantages of the modern U.S. fleet is substantial in any future conflict. An asymmetrical threat any modern military faces today is cyber attack. This form of warfare is cheap and easy to disguise. Cyber attacks have the ability to shutdown power systems, degrade communications and negatively affect communication. The beauty of this form of warfare is that the attacker can infiltrate computer systems and disrupt the system of an opponent without anyone ever knowing the attack even happened. With the modern U.S. Navy increasingly dependent on computers in virtually all operations, this raises a rather large critical vulnerability that must be defended. With the possibility of computer systems being attacked by any pathway through a communication line, the need for a robust computer defensive and offensive ability is a must for the U.S. Navy.

### A Triumph of Op Art and Design

Although the Royal Navy played the most noticeable role in the defeat of Argentina, the true champion was the implementation of solid operational art. This was accomplished by having a clear military end state supported by obtainable objectives, attacking the enemy COG along defined lines of operations. The basic premise of the Falklands campaign was to cut off the garrison on the island, invade if necessary and take back the islands by force. The Admiralty stated, "While diplomatic efforts continued the net was gradually drawn more tightly around the

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Argentine garrison on the Falklands. On 12 April we imposed a maritime exclusion zone of 200 miles around the Falklands against Argentine naval ships." <sup>13</sup> Here we see solid application of operational art in center of gravity determination. The strategic center of gravity of this operation was the Falkland Islands; these are the focal point of the conflict and by applying a maritime exclusion zone around these islands the British effectively isolated and cutoff this center of gravity from the opponent. For the British there strategic center of gravity was the will of the people, an easily disrupted COG according to the Argentineans who thought the British wouldn't undertake such a large deployment over such a small piece of land. At the operational level the Argentinean COG resided in the forces occupying the Falklands and the air forces stationed on the mainland. The British operational center of gravity was the task force itself. The British were able to isolate the center of gravity of the Argentineans both operationally and strategically, while protecting their own through solid informational operations and sea power. Sea power was an enabler for air and land power to achieve victory by providing a dominance of the battle space. Control of the air was contested and during the invasion of San Carlos land control was also contested, but sea control was dominated and never challenged for the rest of the war except for air raids carried out by the Argentinean Air Force.

### **Current Naval Op Art and Design**

This example of sound operational art can be applied to joint war fighting by looking at the current engagements the U.S. is involved in around the globe. Iraq is halfway around the world and the lessons of logistics and power projection are applicable. The U.S. Navy's primary responsibility has always been sea control, keeping the sea lines of communication open for commercial vessels as well as military sealift. If this can't be accomplished, deployed forces

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will suffer the same fate as the Argentinean garrison on San Carlos, cut off without resupply and forced to capitulate. Once sea control is accomplished, just like in the Falklands, sea power can use its assets to supply to the Joint Forces Air Component Commander (JFACC) to attack an opponent air force, integrated air defense system (IADS), command and control and lines of communication from the sanctuary of the sea, which is firmly controlled by the navy. When ground troops deploy, the primary focus of air and sea power must be in support of the Joint Forces Land Component Commander (JFLCC.) Here it is interesting to note that primary supported and supporting forces shift along as the campaign progresses. In Iraq and Afghanistan, the ground component is the primary concern and the unity of effort must be focused on success in this environment. Tasks, like direct kinetic actions might not be in the best interest of the campaign, other capabilities like sealift, airlift, medical and administrative support might be the focus. With this shift in focus, the primary concern of the navy must still reside in sea control.

### Conclusion

Koburger states, "In the Falklands the Argentines appear to have been content at first just to maneuver for strategic position, as in a game of chess. A battle would almost have been regarded as evidence of clumsiness or stupidity. Exercising a local and, as it proved, temporary command of the sea, they seized a designated limited, easily isolated objective-island territory geographically distant from a homeland-stuffing it with troops and then going on the defensive." Proper application of operational art and design through analysis of naval advantages, disadvantages and limitations like the Royal Navy used during the Falklands

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campaign, is critical to be able to fight and win against numerically and possibly technologically superior foes.

<sup>&</sup>lt;sup>1</sup> Reilly, Jeffrey, "Operational Design Shaping Decision Analysis through Cognitive Vision," 35.

<sup>&</sup>lt;sup>2</sup> Secretary of State for Defense, "The Falklands Campaign: The Lessons, "4.

<sup>&</sup>lt;sup>3</sup> Koburger, Charles W., "Sea Power In The Falklands, "26.

<sup>&</sup>lt;sup>4</sup> Secretary of State for Defense, "The Falklands Campaign: The Lessons, "19.

<sup>&</sup>lt;sup>5</sup> Koburger, Charles W., "Sea Power In The Falklands, "95.

<sup>&</sup>lt;sup>6</sup> Kipp, Jacob W., "Naval Art And The Prism Of Contemporaneity: Soviet Naval Officers And The Lessons Of The Falklands Conflict, "20.

<sup>&</sup>lt;sup>7</sup> Kipp, Jacob W., "Naval Art And The Prism Of Contemporaneity: Soviet Naval Officers And The Lessons Of The Falklands Conflict," 12.

<sup>&</sup>lt;sup>8</sup> Kipp, Jacob W., "Naval Art And The Prism Of Contemporaneity: Soviet Naval Officers And The Lessons Of The Falklands Conflict, "22.

<sup>&</sup>lt;sup>9</sup> Koburger, Charles W., "Sea Power In The Falklands, "73

<sup>&</sup>lt;sup>10</sup> Kipp, Jacob W., "Naval Art And The Prism Of Contemporaneity: Soviet Naval Officers And The Lessons Of The Falklands Conflict, "22.

<sup>&</sup>lt;sup>11</sup> Secretary of State for Defense, "The Falklands Campaign: The Lessons, "16.

<sup>&</sup>lt;sup>12</sup> Kipp, Jacob W., "Naval Art And The Prism Of Contemporaneity: Soviet Naval Officers And The Lessons Of The Falklands Conflict, "29.

<sup>&</sup>lt;sup>13</sup> Secretary of State for Defense, "The Falklands Campaign: The Lessons," 5.

<sup>&</sup>lt;sup>14</sup> Koburger, Charles W., "Sea Power In The Falklands, "130.